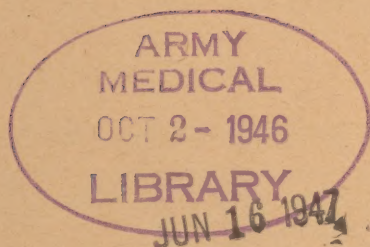


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JAPANESE MEDICAL MATERIEL

JAPANESE VETERINARY DRUGS AND MEDICINES



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MEDICAL ANALYSIS SECTION
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Japanese Veterinary Drugs and Medicines

SOURCE: Army Veterinary Supply Depot, Tachikawa, Japan.

IMPORTANCE: Not previously reported.

The majority of veterinary medicaments which were confiscated were found to have no intelligence value. Those described in this report were selected because they generally represent an attempt on the part of the Japanese to utilize their native, cheap materials or waste products. The most characteristic classes of items are fish products (whale oil, whale wax, fish meal and solidified sardine oil) and silkworm products (silkworm chrysalis and silkworm dung). Soya bean oil and cocoa butter, both of which are indigenous to the Far East, also played important roles.

Of the 7 medicaments described in this report, 4 represent attempts at substitution research, 1 is a sulfonamide compound, 1 a nutrient and 1 a dried normal horse serum. The dried serum is described because its method of manufacture yields a free-flowing, micro-crystalline product which is stable and can be readily handled.

Information on Japanese veterinary drugs and medicines was obtained by interrogating the following persons:

1. GENGI MINOSHIMA, former Japanese army veterinary captain, Army Veterinary Supply Depot, Tachikawa.
2. SHINICHIRO HANO, civilian employee, medical Research Section, Army Veterinary Supply Depot, Tachikawa.

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4. Nutriment
5. Serum, Normal Horse, Dried (Dried Serum (B))
6. Substitute Cetyl Alcohol Ointment (Cetanol Ointment)
7. Substitute Wilson's Ointment

SUBSTITUTE FOR PETROLATUM

(Substitute Vaseline #1)

DESCRIPTION: A soft, buff, unctuous mass with a faint odor and the consistency of lard. It melts when applied to the skin and spreads readily. Rancidity is not present. The Army Veterinary Supply Depot distributed this medicament in 500 gram jars.

MANUFACTURE: This product is a calcium soap admixed with mineral oil or a vegetable oil. Soy bean oil is generally employed because of its low cost.

Vegetable oil is first saponified with sodium hydroxide. The corresponding calcium soap is then formed by treatment with calcium chloride solution. The final step is the admixing, by weight, of one part of calcium soap with ten parts of mineral or vegetable oil, with the aid of heat.

USE: An ointment base.

COMMENT: It may be assumed that Japan was prevented from obtaining all the petrolatum she required, or that other uses for petrolatum held a higher priority than its use as a medicament. A reasonable substitution seems to have been accomplished. This product would be particularly useful for medicaments requiring a mildly alkaline base.

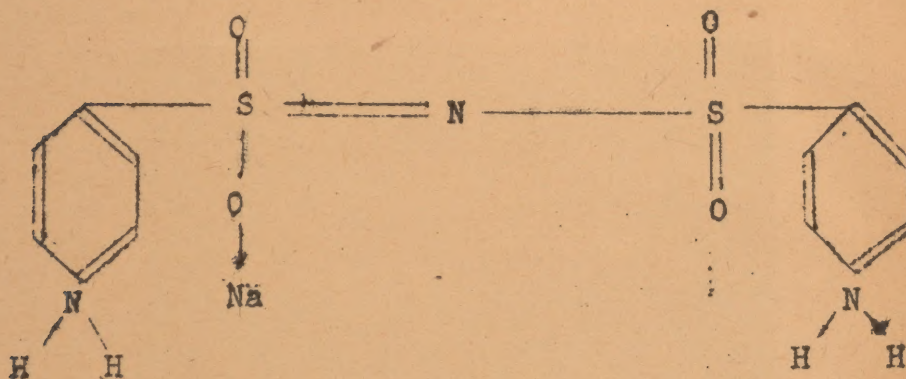


SODIUM (DI-SULFANYLYL) - IMIDE

(N - N' - Disulfanilimid - Na)

DESCRIPTION: This synthetic chemical is a white crystal. Approximately 10 grams, in a sample bottle, were obtained.

CHEMISTRY: The Japanese refer to this compound as N - N' - Disulfanilimid - Na and assign to it the formula $(\text{NH}_2 - \text{C}_6\text{H}_4 - \text{SO}_2)_2 \cdot \text{N} - \text{Na}$. The proper nomenclature for this synthetic is Sodium (Di-sulfanylyl)-imide and its graphic structure, by accepted chemical standards, would probably be



No information as to the method of synthesis could be obtained because of the scattering of personnel which occurred after the demobilization of the Japanese Army. Only experimental quantities had been synthesized.

USE: The product has been experimentally employed in the treatment of equine infectious anemia. It is claimed that this infectious disease of the horse is characterized by loss of weight and a secondary anemia similar to that which occurs in human pulmonary tuberculosis.

Because of the limited number of biological experiments, no conclusions had been drawn as to the efficacy of this chemical.

COMMENT: This compound has been reported so that it may be critically evaluated in the United States of America. Inasmuch as the literature on sulfonamide compounds is voluminous, no exhaustive search has been made in this theatre; however, it is not recorded in the common reference books. If it is deemed worthy of further study, its synthesis should present no major problems.



ICHTHAMMOL (ICHTHYOL) SUBSTITUTE

DESCRIPTION: A black, slightly viscous liquid with a tar-like odor.

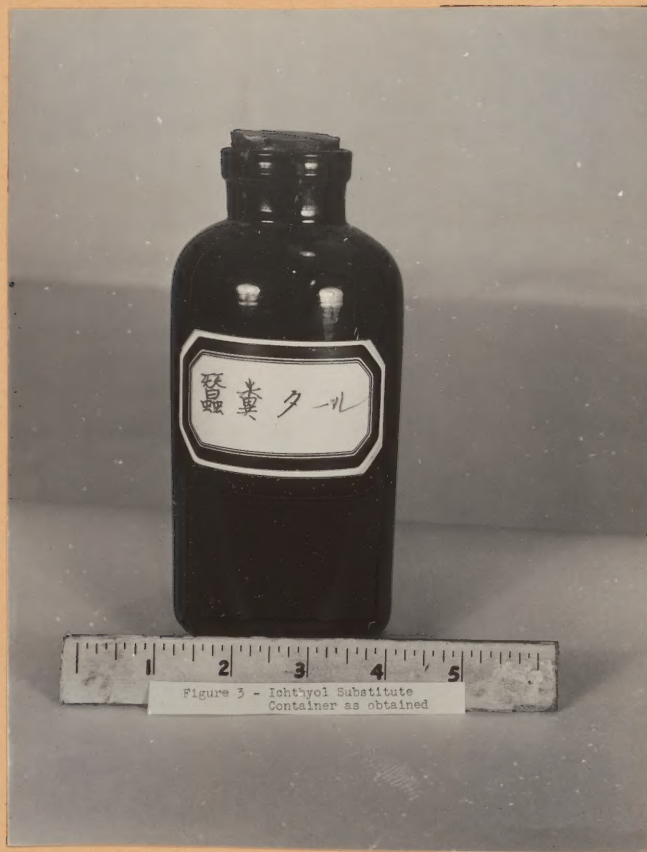
It is insoluble in water.

MANUFACTURE: Silk worm dung is collected and subjected to dry distillation at 500° C. in the presence of air. The distillate forms two fractions. The lower water-soluble fraction is discarded; the upper water-insoluble fraction is reserved for use.

USE: This product has been employed in the treatment of human eczema (10 cases) and equine scabies (100 cases). A high percentage of cures is claimed for each.

COMMENT: Conclusive evaluation on the basis of the available information is impossible. However, the product is claimed to have physiological activity on the basis of therapeutic tests and may be worthy of further investigation. Its cost should be very low.

The introduction of this ichthammol substitute represents an attempt on the part of the Japanese to utilize as basic materials, those substances which were common in their economy and/or develop uses for their waste materials.



NUTRIMENT

DESCRIPTION: A brown granular powder with a musty odor. The odor is probably due to the mold which has attacked the product.

COMPOSITION: It is prepared according to the following formula:

15% Fish meal

30% Powdered chrysalis of silkworm

15% Powdered defatted soya beans

30% Wheat bran

5% Calcium Carbonate

5% Calcium Phosphate, Dibasic

USE: Excellent nutritional results were said to be obtained by admixing 10% of this preparation with other feed.

COMMENT: It will be noted here too that the emphasis is on the utilization of cheap materials which are readily available, notably fish meal, silkworm chrysalis and soya beans.



SERUM NORMAL HORSE, DRIED

DRIED SERUM (3)

DESCRIPTION: Dried normal horse serum is a buff free-flowing product and consists of fine, needle-like micro-crystals containing occasional black particles. Approximately 300 grams are available.

MANUFACTURE: The Tachikawa Depot manufactured this dried serum by pressure-spraying the liquid serum into air pre-heated to 100° C. Dehydration occurred as the spray fell through the air. The moisture content was controlled to a maximum of 10% in order to obviate caking and spoilage. No preservative is added.

An alternative method of preparation is vacuum drying.

USE: The dried serum is employed for media in concentrations of 1% to 2%.

PROPERTIES: On exposure to air, caking occurs in approximately a week during the winter, and in a month during the summer. No spoilage occurs during normal storage and use in the laboratory. It is claimed that decomposition will probably occur if the moisture content is above 10%.

It is claimed that at times the dried serum has a tendency to become slightly insoluble. While this constitutes a nuisance during the preparation of media, it does not affect the growth of bacteria.

COMMENT: The free-flowing quality and micro-crystalline structure of this product are particularly desirable features which permit ease of handling. This quality is characteristic of stable

chemicals but frequently lacking in biological materials. It is felt that these advantages result from the method of manufacture employed.

No caking or decomposition seems to have occurred during its five month storage period at room temperature in this Section in an amber, glass-stoppered bottle.

The black particles probably result from partial carbonization during manufacture. Control to a minimum or even complete elimination of carbonization should be possible through proper design of the apparatus employed and optimum manufacturing conditions. The utilization of optimum manufacturing conditions would also probably minimize the "denaturization" of the proteins, a change which adversely affects their solubility.



Figure 5 - Dried Horse Serum
Container as obtained

SUBSTITUTE CETYL ALCOHOL OINTMENT

(Cetanol Ointment)

DESCRIPTION: A white unctuous odorless mass which spreads readily on the skin and is insoluble in water. It is said to be more stable than the product made from vegetable oils.

COMPOSITION: Cetanol Ointment P.J.V. consists of 10% cetanol (cetyl alcohol) and 90% half-solidified peanut oil.

This substitute product is a mixture of whale wax and whale oil, the quantities of each being varied to yield the optimum melting point desired for a particular locale.

USE: An ointment base.

COMMENT: The choice of ingredients for this substitute product has again been limited to articles which are cheap and available in Japan.

It was admitted that this ointment lacked the desirable features of petrolatum.

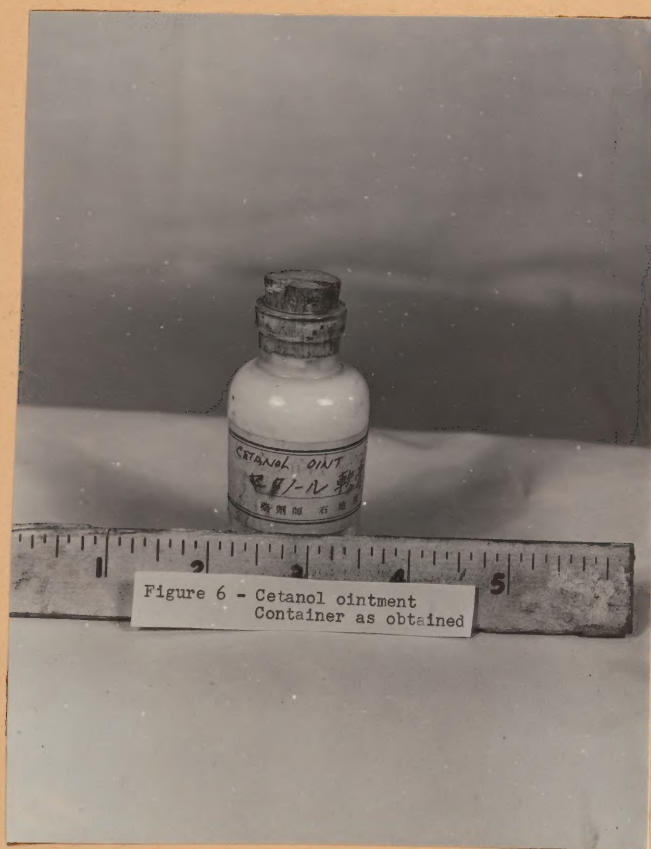


Figure 6 - Cetanol ointment
Container as obtained

SUBSTITUTE WILSON'S OINTMENT

DESCRIPTION: A white, readily-spreading unctuous mass.

COMPOSITION: Wilson's Ointment, P.J.V. consists of 20% of zinc oxide and 80% of benzoinated lard.

The following formula for the substitute product was developed during the war:

| | |
|---------------------------|---------|
| Zinc Oxide | 20.0 gm |
| Benzoin | 1.6 gm |
| Exsiccated sodium sulfate | 2.4 gm |
| Solidified sardine oil | 10.0 gm |
| Cocoa butter | 60.0 gm |
| Lard | 10.0 gm |

COMMENT: It is claimed that the Wilson's Ointment of P.J. V. formula rapidly turns rancid. The substitute formula was developed in order to overcome this difficulty.

It will be noted that the relatively expensive lard was largely replaced by inexpensive, common fats i.e. cocoa butter and solidified oil manufactured from sardine oil.

